ABSTRACT

~~The present invention is an~~An electrostatic levitation furnace ~~which is provided with a vacuum chamber,~~ wherein main electrodes opposed to each other within ~~the~~a vacuum chamber are arranged at intervals to form interspaces between them~~, an auxiliary electrode moving a sample levitated by an electrostatic field generated between the main electrodes, and a laser irradiator irradiating a laser beam on a sample displaced at a predetermined position, wherein a plurality of the main electrodes are arranged at proper intervals in a vertical direction to form electrostatic field generating interspaces between the adjacent the main electrodes respectively, auxiliary~~. Auxiliary electrodes are arranged to correspond to each of the electrostatic field generating interspaces, and ~~the~~ laser irradiators are arranged ~~both of~~ above the uppermost main electrode ~~positioned uppermost~~ and under the lowermost main electrode ~~positioned lowest so as to be opposed to each other coaxially~~, and the main electrode positioned midway between the uppermost ~~one~~ and ~~the~~ lowest one has a through-hole on an optical path of laser beam which a sample can be passed through. ~~The electrostatic levitation furnace, for example, when~~When two species of samples are fused together, regardless of whether or not the samples are conductors, the furnace has the function of melting the levitated samples ~~being levitated individually~~ and fusing them together while maintaining each of the temperatures of the samples, and consequently this ~~enables to actualize a~~permits realization of fusion in a state ~~excluded~~free of external interference.